

SENSOR FOR DETECTING SMALL
CONCENTRATIONS OF A TARGET MATTER

5 ABSTRACT OF THE DISCLOSURE

10 A sensor for detecting a target matter includes a
chemical sensitive layer that is operable to react when
exposed to the target matter and a piezoresistive material
coupled to the chemical sensitive layer. The chemical
sensitive layer is configured such that the reaction of the
target matter with the chemical sensitive layer creates an
interfacial tension at the interface of the chemical
sensitive layer and the piezoresistive material that
changes the electrical resistance of the piezoresistive
15 material. However, the chemical sensitive layer is
configured such that the reaction of the target matter with
the chemical sensitive layer does not affect the bulk
properties of the chemical sensitive layer enough to change
the electrical resistance of the piezoresistive material.

20 The sensor also includes an electrical circuit coupled to
the piezoresistive material that is operable to detect the
change in the electrical resistance of the piezoresistive
material due to the interfacial tension.